

1 **In the Claims**

2 Claims 1, 8, 13, 21, 28, 33, 38, 40, 44, 57, 63, 67 and 70 are amended.

3 Claims 1-75 remain in the application and are listed below:

4
5 1. (Currently Amended) An editing system comprising:

6 a switch assembly comprising one or more software-implemented matrix
7 switches, individual matrix switches comprising:

8 one or more input pins configured to receive a data stream; and

9 one or more output pins configured to output a data stream;

10 the one or more input pins being routable to the one or more output pins,
11 the switch assembly being configured to process both compressed and
12 uncompressed data streams to provide a compressed output data stream that
13 represents a user-defined editing project in which a user can construct said editing
14 project by operating on one or more sources of multimedia content that provide
15 said data streams.

16
17 2. (Original) The editing system of claim 1, wherein the switch
18 assembly comprises multiple switches.

19
20 3. (Original) The editing system of claim 2, wherein one switch is
21 configured to process compressed data streams.

22
23 4. (Original) The editing system of claim 2, wherein one switch is
24 configured to process uncompressed data streams.

1 5. (Original) The editing system of claim 2, wherein one switch is
2 configured to process compressed data streams, and one switch is configured to
3 process uncompressed data streams.

4
5 6. (Original) One or more computer-readable media having computer-
6 readable instructions thereon which, when executed by a computer, provide the
7 editing system of claim 1.

8
9 7. (Original) The editing system of claim 1 configured as a multi-media
10 editing system.

11
12 8. (Currently Amended) An editing system comprising:
13 a media processing object configured to:
14 receive multiple data streams comprising compressed and
15 uncompressed data streams; and
16 process the one or more data streams to provide a compressed output
17 data stream that represents a user-defined media project in which a user can
18 construct the media project by operating on one or more sources of multimedia
19 content.

20
21 9. (Original) The editing system of claim 8, wherein the media
22 processing object comprises a software-implemented switch assembly.

1 10. (Original) The editing system of claim 8, wherein the media
2 processing object comprises a software-implemented switch assembly having
3 multiple pins configured to receive or provide data streams.

4
5 11. (Original) The editing system of claim 8, wherein the media
6 processing object comprises multiple software-implemented switches each of
7 which having one or more pins configured to receive or provide data streams.

8
9 12. (Original) The editing system of claim 8, wherein the media project
10 comprises a multi-media project.

11
12 13. (Currently Amended) A multi-media editing system comprising:
13 a switch assembly comprising one or more software-implemented matrix
14 switches, individual matrix switches comprising:

15 one or more input pins configured to receive a data stream; and

16 one or more output pins configured to output a data stream;

17 the one or more input pins being routable to the one or more output pins,
18 the switch assembly being configured to process both compressed and
19 uncompressed data streams to provide a compressed output data stream that
20 represents a user-defined multi-media editing project in which a user can construct
21 the multi-media editing project by operating on one or more sources of multimedia
22 content that provide said data streams; and

23 one or more data structures associated with the switch assembly and
24 configured for use in programming the switch assembly to provide a routing
25

1 scheme for routing input pins to output pins for a given multi-media editing
2 project time line.

3
4 14. (Original) The multi-media editing system of claim 13, wherein the
5 one or more data structures comprise one or more grid structures, individual grid
6 structures being configured to contain data that defines an association between
7 input and output pins for the project time line.

8
9 15. (Original) The multi-media editing system of claim 13, wherein the
10 switch assembly comprises multiple switches.

11
12 16. (Original) The multi-media editing system of claim 15, wherein the
13 one or more data structures comprise a data structure associated with at least some
14 of the multiple switches.

15
16 17. (Original) The multi-media editing system of claim 16, wherein the
17 data structures comprise grid structures that contain data that defines an
18 association between input and output pins for the project time line.

19
20 18. (Original) The multi-media editing system of claim 15, wherein one
21 switch is configured to process compressed data streams, and another switch is
22 configured to process uncompressed data streams.

1 19. (Original) The multi-media editing system of claim 18, wherein the
2 one or more data structures comprise data structures associated with the switches
3 that are configured to process the compressed and uncompressed data streams.

4
5 20. (Original) The multi-media editing system of claim 19, wherein the
6 data structures comprise grid structures that contain data that defines an
7 association between each switch's input and output pins for the project time line.

8
9 21. (Currently Amended) A multi-media editing system comprising:
10 a switch assembly comprising one or more non-hardware matrix switches,
11 individual matrix switches comprising:

12 one or more input pins configured to receive a data stream; and

13 one or more output pins configured to output a data stream;

14 the one or more input pins being routable to the one or more output pins,
15 the switch assembly being configured to process both compressed and
16 uncompressed data streams to provide a compressed output data stream that
17 represents a user-defined multi-media editing project in which a user can construct
18 said editing project by operating on one or more sources of multimedia content
19 that provide said data streams.

20
21 22. (Original) The multi-media editing system of claim 21, wherein the
22 switch assembly comprises multiple switches.

23
24 23. (Original) The multi-media editing system of claim 22, wherein one
25 switch is configured to process compressed data streams.

1
2 24. (Original) The multi-media editing system of claim 22, wherein one
3 switch is configured to process uncompressed data streams.

4
5 25. (Original) The multi-media editing system of claim 22, wherein one
6 switch is configured to process compressed data streams, and another switch is
7 configured to process uncompressed data streams.

8
9 26. (Original) The multi-media editing system of claim 21 further
10 comprising one or more data structures associated with the switch assembly and
11 configured for use in programming the switch assembly to provide a routing
12 scheme for routing input pins to output pins for a given multi-media editing
13 project time line.

14
15 27. (Original) The multi-media editing system of claim 26, wherein the
16 one or more data structures comprise grid structures that contain data that defines
17 an association between input and output pins for the project time line.

18
19 28. (Currently Amended) An media processing system comprising:
20 switch means for receiving compressed and uncompressed data streams
21 associated with sources that are to be incorporated into a user-defined editing
22 project in which a user can construct said editing project by operating on one or
23 more sources of multimedia content that provide said data streams, and said switch
24 means processing the compressed and uncompressed data streams to provide a
25 single compressed output stream that represents the project; and

1 programming means associated with the switch means and configured to
2 program the switch means to provide the single compressed output stream.

3
4 29. (Original) The multi-media editing system of claim 28, wherein the
5 switch means comprises:

6 first switch means for processing the uncompressed data stream to provide
7 an output uncompressed data stream;

8 second switch means for processing the compressed data stream to provide
9 an output compressed data stream; and

10 third switch means for processing the output uncompressed and compressed
11 data streams to provide the single compressed output stream.

12
13 30. (Original) The multi-media editing system of claim 28, wherein the
14 switch means comprises means for providing a data stream as a feedback data
15 stream that is processed by the switch means.

16
17 31. (Original) The multi-media editing system of claim 28, wherein the
18 switch means comprises switch means implemented in software.

19
20 32. (Original) The multi-media editing system of claim 28, wherein the
21 switch means comprises:

22 first software switch means for processing the uncompressed data stream to
23 provide an output uncompressed data stream;

24 second software switch means for processing the compressed data stream to
25 provide an output compressed data stream; and

1 third software switch means for processing the output uncompressed and
2 compressed data streams to provide the single compressed output stream.

3
4 33. (Currently Amended) A multi-media editing system comprising:

5 a first software-implemented matrix switch comprising one or more input
6 pins and one or more output pins, the one or more input pins being routable to the
7 one or more output pins, the first matrix switch being configured to process one or
8 more uncompressed data streams and output an uncompressed data stream;

9 a second software-implemented matrix switch comprising one or more
10 input pins and one or more output pins, the one or more input pins being routable
11 to the one or more output pins, the second matrix switch being configured to
12 process one or more compressed data streams and output a compressed data
13 stream; and

14 a third software-implemented matrix switch comprising multiple input pins
15 and multiple output pins, the input pins being routable to one or more output pins,
16 the third matrix switch being configured to receive an uncompressed data stream
17 from the first switch and a compressed data stream from the second switch and
18 process the received data streams to provide a single compressed output data
19 stream that represents a user-defined multi-media editing project in which a user
20 can construct said editing project by operating on one or more sources of
21 multimedia content that provide said data streams.

22
23 34. (Original) The multi-media editing system of claim 33 further
24 comprising a software-implemented compressor element coupled with the third
25 switch and configured to receive and compress an uncompressed data stream.

1
2 35. (Original) The multi-media editing system of claim 34 further
3 comprising a feedback path between the compressor element and an input pin of
4 the third switch configured to provide a compressed data stream to the third
5 switch's input pin.

6
7 36. (Original) The multi-media editing system of claim 33, wherein the
8 third switch is programmed to receive, when available, a data stream from the
9 second switch and, when a data stream is unavailable from the second switch, seek
10 a data stream from the first switch.

11
12 37. (Original) One or more computer-readable having computer-
13 readable instructions thereon which, when executed by a computer, provide the
14 multi-media editing system of claim 33.

15
16 38. (Currently Amended) A multi-media editing system comprising:
17 first software switch means for processing one or more uncompressed data
18 streams to provide an uncompressed data stream, the switch means comprising at
19 least one feedback loop that modifies a data stream that is output by the switch
20 means and provides the modified data stream as an input to the switch means;

21 second software switch means for processing one or more compressed data
22 streams to provide a compressed data stream; and

23 a third software switch means for receiving an uncompressed data stream
24 from the first software switch means and a compressed data stream from the
25 second software switch and processing the received data streams to provide a

1 single compressed output data stream that represents a user-defined multi-media
2 editing project in which a user can construct said editing project by operating on
3 one or more sources of multimedia content that provide said data streams.

4
5 39. (Original) The multi-media editing system of claim 38 further
6 comprising programming means associated with the first and second software
7 switch means for programming routing of data streams therethrough.

8
9 40. (Currently Amended) A multi-media editing system comprising:
10 a first software-implemented matrix switch comprising one or more input
11 pins and one or more output pins, the one or more input pins being routable to the
12 one or more output pins, the first matrix switch being configured to process one or
13 more uncompressed data streams and output an uncompressed data stream;

14 a second software-implemented matrix switch comprising one or more
15 input pins and one or more output pins, the one or more input pins being routable
16 to the one or more output pins, the second matrix switch being configured to
17 process one or more compressed data streams and output a compressed data
18 stream;

19 a third software-implemented matrix switch comprising multiple input pins
20 and multiple output pins, the input pins being routable to one or more output pins,
21 the third matrix switch being configured to receive an uncompressed data stream
22 from the first switch and a compressed data stream from the second switch and
23 process the received data streams to provide a single compressed output data
24 stream that represents a user-defined multi-media editing project in which a user
25

1 can construct said editing project by operating on one or more sources of
2 multimedia content that provide said data streams; and

3 one or more data structures associated with at least some of the matrix
4 switches and configured for use in programming the associated switches to
5 provide a routing scheme for routing input pins to output pins.

6
7 41. (Original) The multi-media editing system of claim 40, wherein the
8 one or more data structures comprise one or more grid structures that contain data
9 that defines an association between input and output pins for a project time line.

10
11 42. (Original) The multi-media editing system of claim 40, wherein the
12 one or more data structures comprise multiple data structures, individual data
13 structures being associated with the first and second switches.

14
15 43. (Original) The multi-media editing system of claim 42, wherein the
16 data structures comprise grid structures each of which contains data that defines an
17 association between input and output pins of its associated switch for a project
18 time line.

19
20 44. (Currently Amended) A multi-media editing method comprising:
21 providing a switch assembly comprising one or more software-
22 implemented matrix switches, individual matrix switches comprising one or more
23 input pins and one or more output pins, the one or more input pins being routable
24 to the one or more output pins, the switch assembly being configured to process
25 both compressed and uncompressed data streams to provide a compressed output

1 data stream that represents a user-defined multi-media editing project in which a
2 user can construct said editing project by operating on one or more sources of
3 multimedia content that provide said data streams; and

4 programming the switch assembly using one or more data structures, said
5 programming providing a routing scheme for routing input pins to output pins for
6 a given time period.

7
8 45. (Original) The multi-media editing method of claim 44, wherein said
9 providing comprises providing multiple switches at least one of which being
10 configured to process both compressed and uncompressed data streams.

11
12 46. (Original) The multi-media editing method of claim 44, wherein said
13 providing comprises providing multiple switches, one of which being configured
14 to process only compressed data streams.

15
16 47. (Original) The multi-media editing method of claim 44, wherein said
17 providing comprises providing multiple switches, one of which being configured
18 to process only uncompressed data streams.

19
20 48. (Original) The multi-media editing method of claim 44, wherein said
21 providing comprises providing multiple switches:

22 at least one of which being configured to process both compressed and
23 uncompressed data streams;

24 at least one of which being configured to process only compressed data
25 streams; and

1 at least one of which being configured to process only uncompressed data
2 streams.

3
4 49. (Original) The multi-media editing method of claim 44, wherein said
5 programming comprises programming the switch assembly using one or more grid
6 structures, individual grid structures containing data defining an association
7 between input pins, output pins, and a project time line.

8
9 50. (Original) The multi-media editing method of claim 44 further
10 comprising:

11 representing the editing project as a hierarchical tree structure; and
12 processing the hierarchical tree structure to provide at least one grid
13 structure containing data that defines an association between input pins, output
14 pins and a time line defined by the editing project.

15
16 51. (Original) The multi-media editing method of claim 44, wherein said
17 programming comprises:

18 defining a first grid structure containing data that defines an association
19 between input pins, at least one output pin and a time line defined by the editing
20 project; and

21 defining a second grid structure containing data that defines an association
22 between different input pins, at least one different output pin and the time line
23 defined by the editing project.

24
25

1 52. (Original) The multi-media editing method of claim 51, wherein the
2 first grid structure is associated with programming the switch assembly to process
3 the uncompressed data stream.

4
5 53. (Original) The multi-media editing method of claim 51, wherein the
6 second grid structure is associated with programming the switch assembly to
7 process the compressed data stream.

8
9 54. (Original) The multi-media editing method of claim 51, wherein said
10 defining of the second grid structure comprises deriving the second grid structure
11 from the first grid structure.

12
13 55. (Original) One or more computer-readable media having computer-
14 readable instructions thereon which, when executed by a computer, implement the
15 method of claim 44.

16
17 56. (Original) A multi-media editing application executable on one or
18 more computers to implement the method of claim 44.

19
20 57. (Currently Amended) One or more computer-readable media having
21 computer-readable instructions thereon which, when executed by a computer,
22 cause the computer to:

23 provide a switch assembly comprising multiple software-implemented
24 matrix switches, individual matrix switches comprising one or more input pins and
25

1 one or more output pins, the one or more input pins being routable to the one or
2 more output pins, the switch assembly comprising:

3 a first switch configured to process uncompressed data streams to provide
4 an uncompressed output data stream;

5 a second switch configured to process compressed data streams to provide a
6 compressed output data stream; and

7 a third switch configured to receive both the uncompressed and compressed
8 output data streams and process the data streams to provide a compressed output
9 data stream that represents a user-defined multi-media editing project in which a
10 user can construct said editing project by operating on one or more sources of
11 multimedia content that provide said data streams; and

12 program the switch assembly by defining a first grid structure containing
13 data that defines an association between the first switch's input pins, at least one
14 output pin and a time line defined by the editing project, and defining a second
15 grid structure containing data that defines an association between the second
16 switch's input pins, at least one output pin and the time line defined by the editing
17 project.

18
19 58. (Original) The computer-readable media of claim 57, wherein the
20 instructions cause the computer to derive the second grid structure from the first
21 grid structure.

22
23 59. (Original) The computer-readable media of claim 58, wherein the
24 instructions cause the computer to derive the second grid structure by:
25

1 determining whether any entries in the second grid structure are associated
2 with a data stream source that is not in a format that is the same as or compatible
3 with a format associated with the compressed output data stream that represents a
4 user-defined multi-media editing project; and

5 removing any entry that is not in the same or compatible format.

6
7 60. (Original) The computer-readable media of claim 59, wherein said
8 format is associated with a frame rate.

9
10 61. (Original) The computer-readable media of claim 59, wherein said
11 format is associated with a data rate.

12
13 62. (Original) The computer-readable media of claim 58, wherein the
14 instructions cause the computer to derive the second grid structure by:

15 copying the first grid structure;

16 evaluating the copied grid structure to ascertain entries associated with data
17 source streams that are modified in some way; and

18 removing any grid entries associated with data source streams that are
19 modified in some way.

20
21 63. (Currently Amended) A multi-media editing method comprising:
22 providing a first software-implemented matrix switch comprising one or
23 more input pins and one or more output pins, the one or more input pins being
24 routable to the one or more output pins, the first matrix switch being configured to
25

1 process one or more uncompressed data streams and output an uncompressed data
2 stream;

3 providing a second software-implemented matrix switch comprising one or
4 more input pins and one or more output pins, the one or more input pins being
5 routable to the one or more output pins, the second matrix switch being configured
6 to process one or more compressed data streams and output a compressed data
7 stream;

8 providing a third software-implemented matrix switch comprising multiple
9 input pins and multiple output pins, the input pins being routable to one or more
10 output pins;

11 receiving, with the third matrix switch, an uncompressed data stream from
12 the first switch and a compressed data stream from the second switch; and

13 processing the received data streams with the third switch to provide a
14 single compressed output data stream that represents a user-defined multi-media
15 editing project in which a user can construct said editing project by operating on
16 one or more sources of multimedia content that provide said data streams.

17
18 64. (Original) The multi-media editing method of claim 63, wherein said
19 processing comprises:

20 compressing the uncompressed data stream received from the first switch
21 using a software-implemented compressor element coupled with the third switch;
22 and

23 routing the compressed data stream that was compressed by the compressor
24 element to an input pin of the third switch.
25

1 65. (Original) The multi-media editing method of claim 63 further
2 comprising receiving with the third switch, when available, a data stream from the
3 second switch and, when a data stream is unavailable from the second switch,
4 seeking with the third switch, a data stream from the first switch.

5
6 66. (Original) One or more computer-readable media having computer-
7 readable instructions thereon which, when executed by a computer, implement the
8 method of claim 63.

9
10 67. (Currently Amended) One or more computer-readable media having
11 computer-readable instructions thereon which, when executed by a computer,
12 cause the computer to:

13 process at least one compressed data stream to provide an output
14 compressed data stream that comprises a portion of a user-defined multi-media
15 editing project that is associated with a data stream source;

16 process one or more uncompressed data streams to manipulate the one or
17 more uncompressed data streams to provide an output uncompressed data stream
18 that comprises a different portion of a user-defined multi-media editing project
19 that is associated with one or more data stream sources;

20 compress the output uncompressed data stream; and

21 associate the output compressed data stream and the compressed output
22 uncompressed data stream together to provide a compressed stream that represents
23 a user-defined multi-media editing project in which a user can construct said
24 editing project by operating on one or more sources of multimedia content that
25 provide said data streams.

1
2 68. (Original) The computer-readable media of claim 67, wherein the
3 instructions cause the computer to provide a software-implemented matrix switch
4 that associates the data streams to provide the user-defined multi-media editing
5 project.

6
7 69. (Original) The computer-readable media of claim 67, wherein the
8 instructions cause the computer to provide a software-implemented matrix switch
9 that associates the data streams to provide the user-defined multi-media editing
10 project, the software-implemented matrix switch being configured to receive the
11 output compressed data stream when it is available, and seek the output
12 uncompressed data stream when the output compressed data stream is unavailable.

13
14 70. (Currently Amended) One or more computer-readable media having
15 computer-readable instructions thereon which, when executed by a computer,
16 cause the computer to:

17 receive and process one or more uncompressed data streams with a first
18 software-implemented matrix switch comprising one or more input pins and one
19 or more output pins, the one or more input pins being routable to the one or more
20 output pins to output an uncompressed data stream;

21 receive and process one or more compressed data streams with a second
22 software-implemented matrix switch comprising one or more input pins and one
23 or more output pins, the one or more input pins being routable to the one or more
24 output pins to output a compressed data stream;

25

1 receive and process the uncompressed data stream that is output by the first
2 switch and the compressed data stream that is output by the second switch with a
3 third software-implemented matrix switch comprising multiple input pins
4 individual ones of which receive data streams, and one or more output pins
5 individual ones of which provide data streams, the one or more input pins being
6 routable to the one or more output pins to output, at one output pin, a compressed
7 data stream that represents a user-defined multi-media editing project in which a
8 user can construct said editing project by operating on one or more sources of
9 multimedia content that provide said data streams.

10
11 71. (Original) The computer-readable media of claim 70, wherein the
12 instructions cause the computer to:

13 compress the uncompressed data stream output by the first switch using the
14 third switch; and

15 incorporate the compressed uncompressed data stream with the compressed
16 data stream that is output by the second switch to provide the compressed data
17 stream that represents the user-defined editing project.

18
19 72. (Original) The computer-readable media of claim 70, wherein the
20 instructions cause the computer to program the first and second switches using
21 first and second data structures respectively associated with the first and second
22 switches, each data structure providing a routing scheme for routing switch input
23 pins to switch output pins.

24

25

1 73. (Original) The computer-readable media of claim 72, wherein the
2 first and second data structures comprise grid structures that provide an
3 association between input pins, output pins and a time line defined by a user-
4 defined multi-media editing project.

5
6 74. (Original) The computer-readable media of claim 73, wherein the
7 instructions cause the computer to derive the second grid structure from the first
8 grid structure.

9
10 75. (Original) The computer-readable media of claim 74, wherein the
11 instructions cause the computer to derive the second grid structure by:

12 copying the first grid structure;

13 evaluating the copied grid structure to ascertain entries associated with data
14 source streams that are modified in some way; and

15 removing any grid entries associated with data source streams that are
16 modified in some way.